

NOTES ON AND DESCRIPTIONS OF THE COCCIDS OF SOUTHERN SAGHALIEN.

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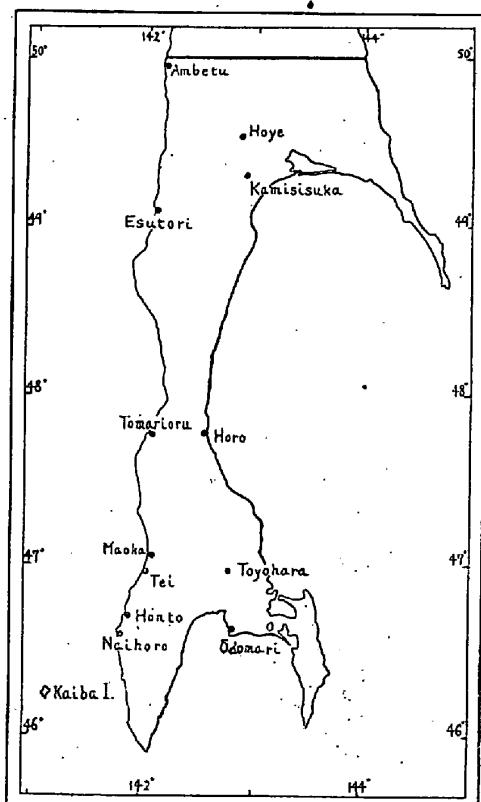
The present paper is the result of a research based on the material collected by the writer in the month of August, 1935. Only one species of the coccid has been recorded from Southern Saghalien up to the present time, *Phenacoccus pergandei* CKLL.* being the example.

There are enumerated in the following pages 19 species occurring out-of-doors, of which 6 are described as new to science.

The coccid fauna of southwestern part of Saghalien is more closely allied to that of southern part of Hokkaido, than those of any other parts of the country as the flora of this region appears to bear a close affinity to that of that district.

The holotypes of the new species described herein are deposited in the collection of the writer, and the paratypes kept in the entomological collection of the Imperial Plant Quarantine Service, Osaka Custom House.

SKETCH MAP OF SOUTHERN SAGHALIEN.



The localities of the material are shown.

* 1934. *Phenacoccus pergandei* CKLL.; HORI: "A List of Injurious Insects of the Agricultural Plants in Southern Saghalien," Bull. Saghl. Cent. Exp. Sta., Ser., I. No. 2, p. 22.

Before going further the writer desires to express his gratitude to Messrs. T. ISUYAMA, M. HORI, B. MISTMA, Y. MURA, J. UENO and M. YOKOYAMA, all of whom have assisted him in the collection of specimens. He also wishes to express his sincere thanks to Mr. J. YAGR for his kindness in drawing all the plates and figures.

Ultracoclostoma japonica (OGUMA).

Xylococcus alni OGUMA, Journ. Coll. Agr. Hokkaido Imp. Univ., VIII, pt. 3, pp. 77~109, 1919.

Xylococcus alni OGUMA; Kuw., Insect World, XXVIII, p. 42, 1924.

Xylococcus japonicus OGUMA, "On the Nomenclature of the Alder-scale", Insecta Matsumurana, I, no. 2, p. 101, 1926.

Host: *Alnus Maximowiczii* CALL.

Locality: Ôdomari, Toyohara, Tomarioru, Maoka, Honto and Naihoro.

Orthezia yasushii KUWANA.

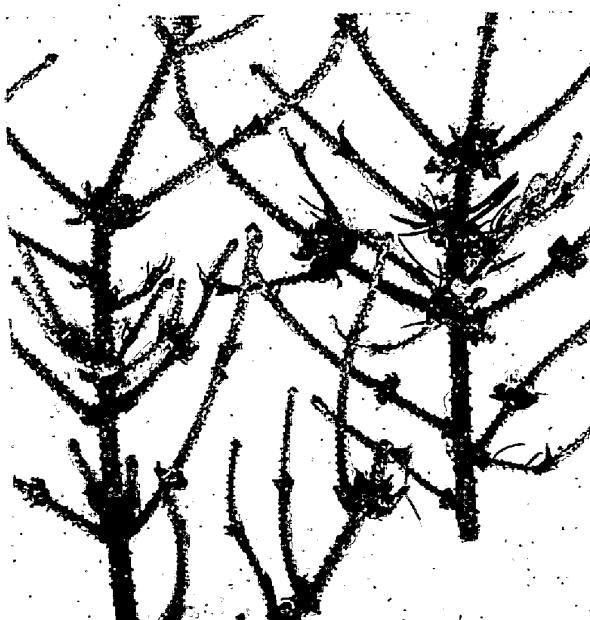
Orthezia yasushii Kuw., Bull. Imp. Plant Quar. Sta., No. 3, p. 58, 1923.

Host: *Anaphalis margaritacea* BENTH. et HOOK. fil.

Locality: Ôdomari.

Physokermes jessoensis n. sp. (Plate II).

Adult female: Generally found on the bud-scales and also at the juncture of the twigs, being specially numerous on the lower branches in groups of from two to as many as six; yellowish brown in colour, closely resembling buds; body more or less wedge-shaped, the venter being deeply intussuscepted as the eggs are deposited, diam. 2.15 to 3.25 mm; antennae reduced to very minute unsegmented tubercles, length about 25 μ , breadth about 15 μ , with about ten rather stout



Physokermes jessoensis, on twigs of spruce.

hairs; legs wanting; mentum short, with several fine hairs at the apex; derm with multilocular pores and tubular ducts, which become numerous towards the posterior extremity.

Newly hatched larva: Body elongate, pale yellow in colour; length about 0.58 mm; breadth about 0.32 mm; margin of the body with a series of rather long setae; antennae six-jointed, rather stout, all joints bearing hairs; measurements in μ : I, 20~25; II, 20~25; III, 40~45; IV, 20~22.5; V, 20~22.5; VI, 30~35; formula 3, 6, (1, 2), (4, 5); legs well developed, large and stout, three pairs being similar; mouth-parts large, rostral loop long; thoracic spiracles moderate in size, each being accompanied by 3 or 4 multilocular pores besides two very large triangular or pestle-shaped stigmatic spines; anal ring with pores and six slender setae; in the first and second instars with a pair of triangular, supra-anal plates, each of which bears a long seta in addition to three short hairs.

Very much resembles to *Physokermes piceae* Schr. (*P. abietis* GEOFF.) except for the following differences, viz.: the adult female of the former species is pale yellowish brown in colour, as against bright chestnut-brown or dark brown of the latter; again the larva of the former has two very large stigmatic spines on each of the stigmatic regions, while that of the latter species has none of them.

Host: *Picea jezoensis* CARR. (Ezomatu).

Locality: Ôdomari, Toyohara, Esutori, Tomarioru, Maoka, Honto and Naihoro.

Eriococcus onukii KUWANA.

Eriococcus onukii Kuw., Pr. Cal. Acad. Sci., (3), iii, p. 51, 1902.

Host: *Susa peniculata*, MAKINO et SHIB. and *Susa* sp.

Locality: Horo, Tei, Honto, Naihoro and Kaiba Island.

Eriococcus sachalinensis n. sp. (Plate III, Figs. A~E).

Sac of the female: Length about 2.6mm; breadth about 1.4mm; elongate, moderately convex, closely felted, homogenous; white or greyish white at first, but usually changes to ochreous or pale straw-colour with age.

Adult female: Length 2 to 2.4mm; breadth 1 to 1.4mm; pale greenish yellow in colour, before gestation elongate and narrow, tapering behind, segmentation distinct; antennae short, six or seven usually six jointed, the third being the longest, those possessing seven joints have the long third joint

divided in the subcentre; measurements in μ about as follows: I, 42; II, 40; III, 110; IV, 29; V, 27; VI, 39; legs well developed, large and slender, subequal, tarsus slightly longer than tibia; claw large, curved, with a small sub-apical denticle, claw and tarsal digitules slender, slightly knobbed at apex, hind coxae with pores of large, isolated and distinct type; rostrum rather large, robust and conical, of two segments, both subequal in length; body's pines numerous, irregularly distributed over the whole body, vary considerably in size, the smallest being about one-third as big as the largest; ventral surface with numerous small circular pores; anal lobes prominent, slightly chitinized, with a stout seta at the apex of each, two small spines on the inner side, and stout one at the outer side; anal ring with eight stout setae much shorter than the apical setae.

Closely related to *Eriococcus insignis* (NEWSTEAD), but differs from it in the spinose character of the dermis.

Host : Grass.

Locality : Hoye.

Phenacoccus pergandei COCKERELL.

Phenacoccus pergandei CKLL., Psyche, VII, Suppl., 1. p. 18, 1896.

Phenacoccus pergandei CKLL.; Hori, Bull. Saghal. Cent. Exp. Sta., Ser. I, No. 2, p. 22, 1934.

Host : *Ulmus japonica* SARG., *Ribes Grossularia* L. and *Malis pumila* MILL. var. *domestica*, C. K. SCHM.

Locality : Toyohara, Horo, Tomarioru and Maoka.

Pseudococcus kaiensis KANDA.

Pseudococcus kaiensis KANDA, Annot. Zool. Jap., XIII, No. 4, p. 387, 1932.

Host : *Sasa* sp.

Locality : Honto, Naihoro and Kaiba Island.

Synacanthococcus multispinus n. sp. (Plate III, F~M).

Adult female : Length 2.7 to 3.1 mm; breadth 1.6 to 2.1 mm; dark brown in colour, thinly dusted with waxy secretion, without noticeable marginal or caudal tassels; body elongate, convex above; segments more or less tumescent; antennae nine-jointed, the second the longest and the sixth to eighth the shortest; measurements in μ about as follows: I, 50; II, 81; III, 69; IV, 44; V, 45; VI, 40; VII, 37; VIII, 36; IX, 60; legs com-

paratively small, normal; tarsus approximately one-third the length of tibia; claw with a denticle on its inner surface near the tip, claw and tarsal digitules slender, slightly knobbed at apex; both the anterior and posterior dorsal ostioles are small and inconspicuous; margin of body with sixteen or seventeen pairs of spine groups, besides a row of seven or eight similar spine groups on the mid-dorsal body line of the posterior half of the body; all of these spine groups have two stout, conical spines. Each is set on a small circular, chitinized area, each of which normally has three triangular pores; in addition, there are three or four pairs of single spine rows between the median and marginal rows; anal lobes slightly protruding, apical setae long and stout, about 200μ long; anal ring rather small, with inner and outer pore rows and six setae, the longest of them being about 150μ long; derm with three different types of gland pores, the triangular pores not numerous, intermingled with a few tubular ducts, the usual multilocular disk pores being scattered on the ventral surface of the posterior region.

The species can easily be distinguished from *Synacanthococcus bispinosus* MORRISON by the arrangements of the dorsal spine groups and the features of the gland pores.

Host: On stems of *Rosa rugosa* THUNB. (Hamanasu).

Locality: Ôdomari.

Trionymus arnicae n. sp. (Plate IV, Figs. A~D).

Adult female: Rather small in size, maximum length 1.7 mm; maximum breadth 0.8 mm; body elongate, olivaceous green in colour; thinly covered with grey mealy powder, two or three pairs of caudal tassels of which the last are stout and nearly one-third the breadth of the body, the others smaller; antennae eight-jointed, the average length of the joints in μ about as follows: I, 61; II, 60; III, 51; IV, 36; V, 46; VI, 30; VII, 40; VIII, 100; legs long and slender, subequal, femur as long as the tibia, the tibia about 2.5 times as long as tarsus, all digitules slender, slightly knobbed at apex, claw without denticle; two or three pairs of cerarii are situated on the posterior extremity, each with two sharply pointed spines without grouped pores; derm with numerous triangular and multilocular pores; derm setae simple, slender, rather numerous; anterior and posterior dorsal ostioles rather conspicuous; anal lobes rather prominent,

each being provided with a long, stout seta; anal ring with pores besides six setae little shorter than those of the anal lobes.

Host: *Arnica chamissonis* Less. (Karafutokingurumia).

Locality: Kamisisuka.

Antonina crawii COCKERELL.

Antoninus crawii Ckll., Psyche, IX, p. 70, 1900.

Host: *Sasa* sp.

Locality: Horo, Honto, Naihoro and Kaiba Island.

Antonina sasae n. sp. (Plate IV, Figs. E~L).

Adult female: Usually found beneath the leaf-sheaths of the host; either naked or partly covered with cottony secretion and resting on a bed of the same matter; body elongate, more or less strongly tapering behind; dark brown in colour; a white, stout but fragile tubular filament usually projects from the anal orifice; length 3 to 4.5 mm; breadth 1.6 to 2.3 mm; by both lateral and dorsal constrictions; antennae reduced to tiny unsegmented stubs, each with about six small spines at the apex; legs entirely wanting; spiracles large and conspicuous, with a large pore plate immediately behind each posterior spiracle; derm with circular pores and tubular ducts of two sizes; mentum indistinctly two jointed; dorsal ostioles obscure; body setae short and stout, the setae gradually increase in size toward the posterior end of the body; margins of the last five abdominal segments much projecting, the apical segment produced into two lobes with the anal ring in the hollow, the anal ring with six slender setae.

Larva: Body elongate, parallel-sided; antennae six-jointed, the apical joint as long as the three preceding together; legs normal, rather slender, claw without denticle, all digitules slender, slightly knobbed at apex; margin of the abdomen with a series of setae associated with a large trilocular pore; posterior dorsal ostioles conspicuous, but the anterior is not so.

Very much resembles to *Antonina tobai* KUWANA (*Serrolecanium bambusae* SHINJI), but may be distinguished by the structural characters of the posterior extremity, spiracles and the pore plates, etc.

Host: *Sasa* sp.

Locality: Honto.

Lecanium persicae (FABRICIUS).

Coccus persicae FAB., Gen. Ins., p. 304, 1776.

Lecanium magnoliarum CKLL., Ent. News, IX, p. 146, 1898.

Lecanium magnoliarum CKLL.; Kuw., Nippon Kaigara-musi Zusetu, II, p. 24, 1917.

Host: *Rosa rugosa* THUNB. and *Ribes Grossularia* L.

Locality: Ôdomari, Tomarioru, Maoka and Honto.

Chionaspis salicis-nigræ (WALSH).

Aspidiotus salicis-nigræ WALSH, First Rpt. Ins. Ill., p. 40, 1869.

Chionaspis salicis-nigræ (WALSH); Fernald, Cat. Cocc. World, p. 225, 1903.

Chionaspis salicis-nigræ (WALSH); Dietz & Morrison, "The Coccidae or Scale Insects of Indiana", p. 272, 1916.

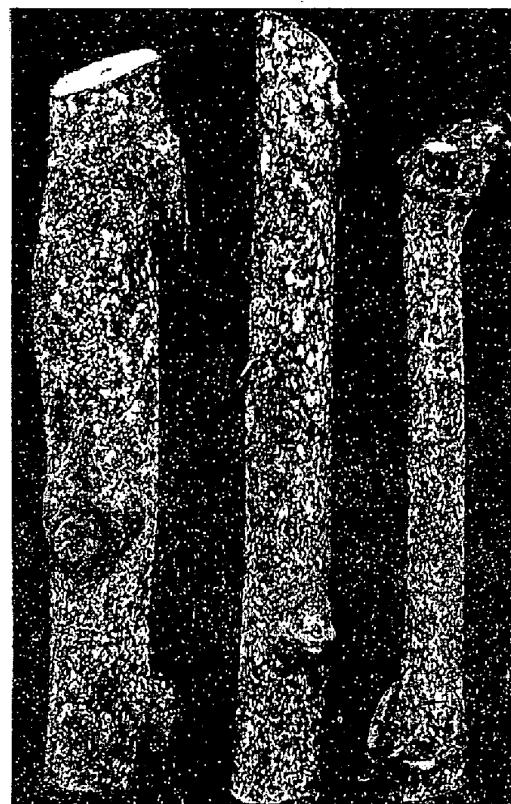
Chionaspis salicis-nigræ (WALSH); Ferris, Atlas of the Scale Insects of North America, SI-24, 1937.

Host: *Alnus Maximowiczii* CALL., *Salix Hultenii* FLÖD and *Salix sachalinensis* FR. SCHM.

Locality: Ôdomari, Toyohara, Ambetu, Tomarioru, Maoka, Honto, Naihoro and Kaiba Island.

Lepidosaphes atunicola n. sp. (Plate V, Figs. I~P).

Scale of female: Length about 2 to 2.5 mm; breadth 0.5 to 0.7 mm; elongate, normally straight, but often curved when crowded, brown to dark-brown in colour; first exuvia orange red and the second large, pyriform and of the same colour as the scale; ventral scale is light brown, and broadly divided.



Chionaspis salicis-nigræ, on stems of willow (*Salix*)

Scale of male: Length about 0.7 to 0.85mm; similar to that of female, but smaller.

Body of female: Elongate, much narrower towards the anterior end, the abdominal region widest, segmentation distinct, light brown in colour; the last three abdominal segments rather projecting, with three or four marginal gland spines and a short, curved, chitinous spur; antennae with two long, curved hairs; anterior parastigmatic pores four to six in number; the first to fifth abdominal segments heavily chitinized both dorsally and ventrally.

Pygidium of female: Broadly rounded, rather heavily chitinized; median lobes large, widely separated, strongly projecting, more or less distinctly notched on both margins, not serrate; second lobes bilobed, the inner lobule much larger and more prominent, third lobes not developed; gland spines rather small, and arranged as follows: two between the median and second lobes, two between the second and third lobes, two beyond the rudimentary third lobes, and two more about half way between these and the base of the pygidium; marginal gland orifices arranged as follows on each side of the median line: 1, 2, 2, 1; dorsal gland orifices rather few and small as shown in figure; circumgenital gland orifices arranged in five groups, variable, in specimens examined; median 6~7, anterior laterals 7~13, posterior laterals 6~13.

Host: *Ulmus laciniata* MAYR (Aruni).

Locality: Honto.

Aulacaspis rosae (BOUCHÉ).

Aspidiotus rosae BOUCHÉ, Naturg. Ins., p. 14, 1834.

Aulacaspis rosae (BOUCHÉ); CKEL., Bull. Bot. Dep. Jam., p. 250, 1896.

Aulacaspis rosae (BOUCHÉ); KUW., Tech. Bull. Imp. Plant Quar. Ser., No. 4, p. 22, 1926.

Aulacaspis rosae (BOUCHÉ); FERRIS, Atlas scale Ins. North Amer., SI-10, 1937.

Host: *Rosa rugosa* THUNB., *Rosa acicularis* LINDL., *Rosa murreetti* LEV. and other wild or cultivated roses.

Locality: Distributed over the whole Island.

Pseudaulacaspis pentagona (TARG.).

Diaspis pentagona TARG., Revista di Bacch., No. 11, 1885.

Aulacaspis (*Diaspis*) *pentagona* (TARG.); NEWST., Monog. Brit. Cocc., I. p.

173, 1900.

Pseudaulacaspis pentagona (TARG.); MACG., The Coccidae, p. 315, 1921.

Susakiaspis pentagona (TARG.); KUW., Diasp. Cocc. Japan, IV, p. 9, 1926.

Pseudaulacaspis pentagona (TARG.); FERRIS, Microentomology, I, Contr. No. 2, p. 26, 1936.

Pseudaulacaspis pentagona (TARG.); Atlas Scale Ins. North Amer., SI-109, 1937.

Host: *Prunus* sp.

Locality: Maoka.

Nikkoaspis shiranensis KUWANA.

Nikkoaspis shiranensis KUW., Diasp. Cocc. Japan, V, p. 38, 1928.

Host: *Sasa albo-marginata*, *Sasa peniculata* and *Sasa* sp.

Locality: Honto, Naihoro and Kaiba Island.

Aspidiotus cryptomeriae KUWANA.

Aspidiotus cryptomeriae KUW., Pr. Cal. Acad. Sci., 3, iii, p. 69, 1902.

Aspidiotus cryptomeriae KUW., Diasp. Cocc. Japan, VII, p. 4, 1933.

Host: *Taxus cuspidata*, SIEB. et ZUCC.

Locality: Tomarioru.

Aspidiotus perniciosus (COMSTOCK).

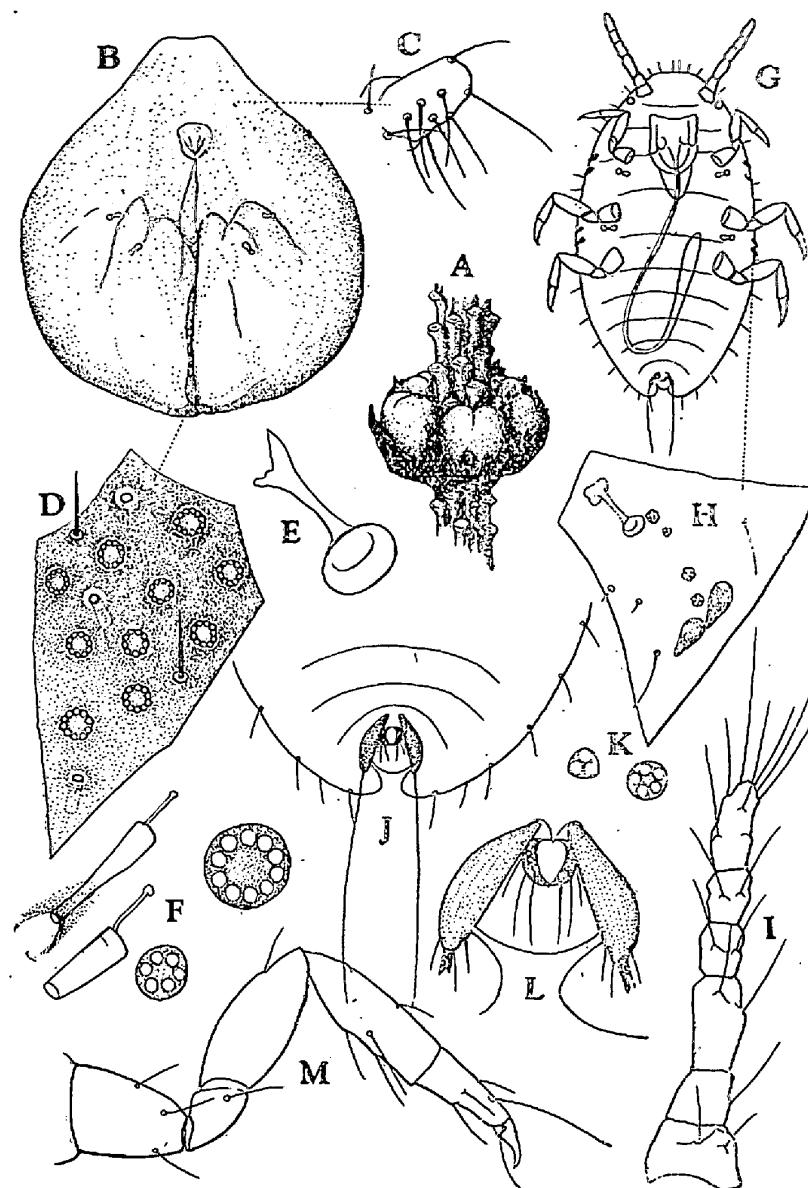
Aspidiotus perniciosus COMST., Rep. U. S. Dep. Agr., 1880, p. 304, 1881.

Aspidiotus perniciosus COMST.; KUW., Diasp. Cocc. Japan, VII, p. 15, 1933.

Host: *Pirus sinensis* LINDL.

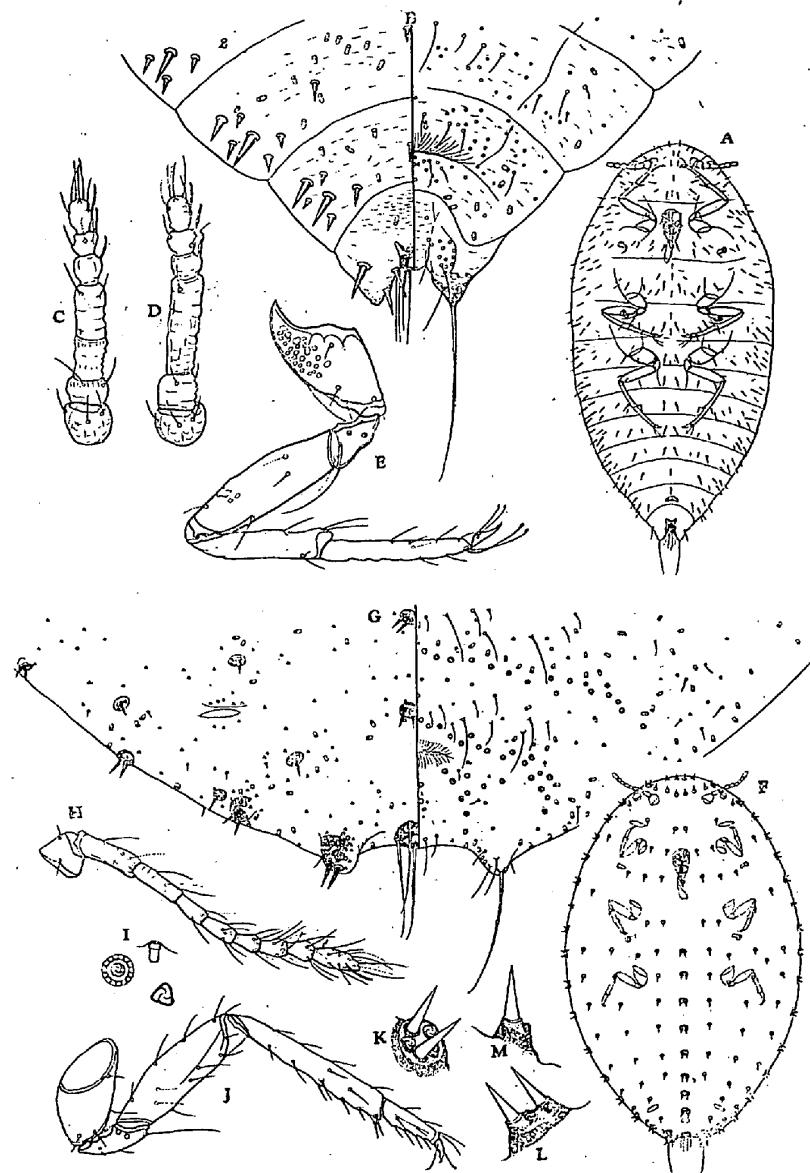
Locality: Maoka.

Plate II.

*Physokermes jessoensis* n. sp. (A~M)

A. Insects on twig of *Picea jessoensis* (enlarged). B. General features of adult female. C. Antenna of adult female. D. Ventral derm of adult female, near the posterior end of body. E. Spiracle of adult female. F. Dermal pores and tubular ducts of adult female. G. General feature of larva. H. Stigmatic region of larva. I. Antenna of larva. J. Posterior extremity of larva. K. Stigmatic pores of larva. L. Apex of abdomen of larva, showing anal ring and supra-anal plates. M. Hind leg of larva.

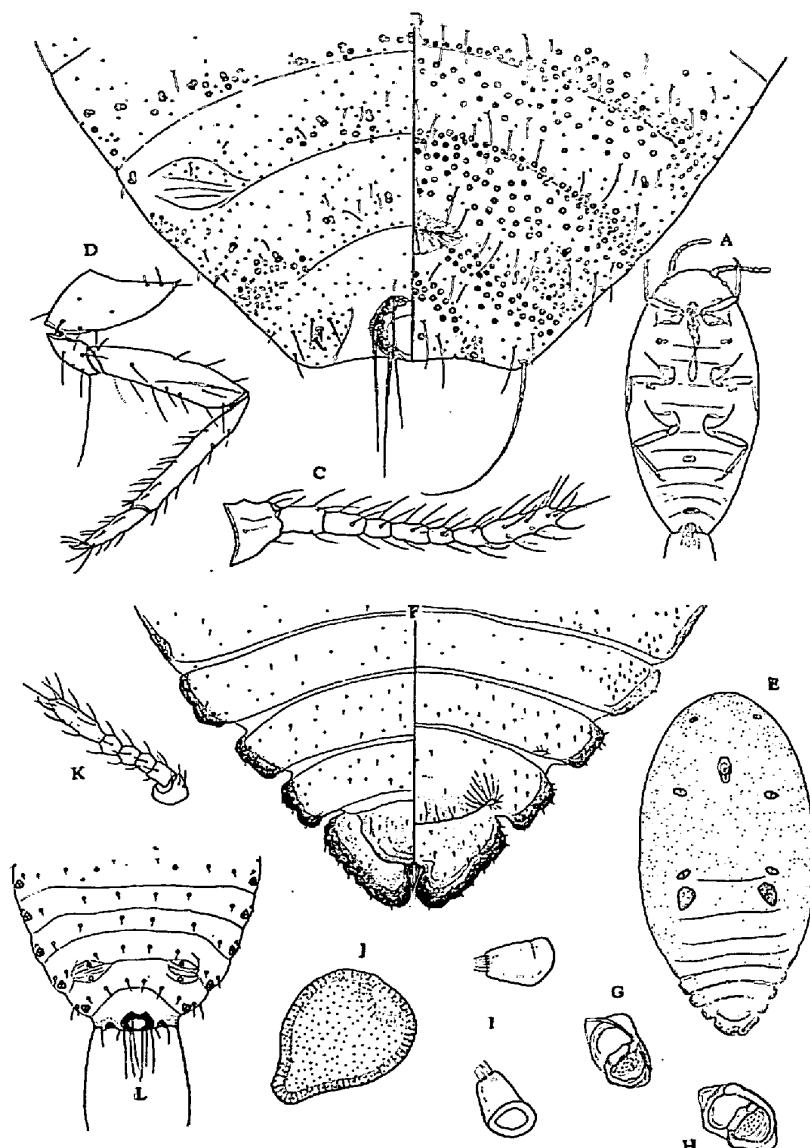
Plate III.

*Eriococcus sachalinensis* n. sp. (A-E)

A. General features of adult female. B. Apex of abdomen of adult female. C, D. Antennae of adult female. E. Hind leg of adult female.

Synacanthococcus multispinus n. sp. (F-M)

F. General features of adult female. G. Apex of abdomen of adult female. H. Antenna of adult female. I. Three different types of gland pores found on body. J. Hind leg of adult female. K.—M. Spine groups found on body.



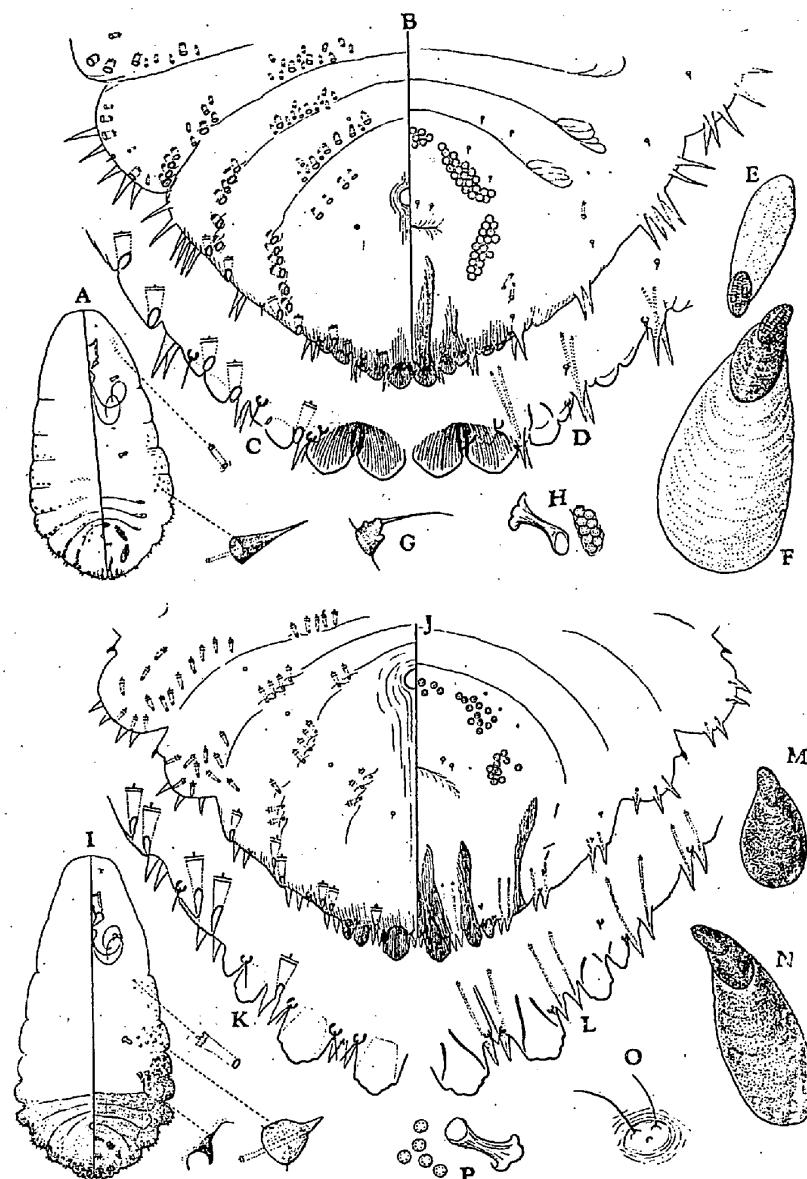
Trionymus arnicae n. sp. (A-D)

A. General feature of adult female. B. Apex of abdomen of adult female
C. Antenna of adult female. D. Hind leg of adult female.

Antonina sasae n. sp. (E-L)

E. General features of adult female. F. Apex of abdomen of adult female
G. Anterior spiracle of adult female. H. Posterior spiracle of adult female.
I. Antennae of adult female. J. Pore plate of adult female.
K. Antenna of larva. L. Apex of abdomen of larva.

Plate V.

*Chionaspis salicis-nigrae* (WALSH). (A-H)

A. General feature of adult female. B. Pygidium of adult female. C. Dorsal aspect of detail of pygidial margin of adult female. D. Ventral aspect of detail of pygidial margin of adult female. E. Male scale. F. Female scale. G. Antenna of adult female. H. Anterior spiracle of adult female.

Lepidosaphes atunicola n. sp. (I-P)

I. General feature of adult female. J. Pygidium of adult female. K. Dorsal aspect of detail of pygidial margin of adult female. L. Ventral aspect of detail of pygidial margin of adult female. M. Male scale. N. Female scale. O. Antenna of adult female. P. Anterior spiracle of adult female.